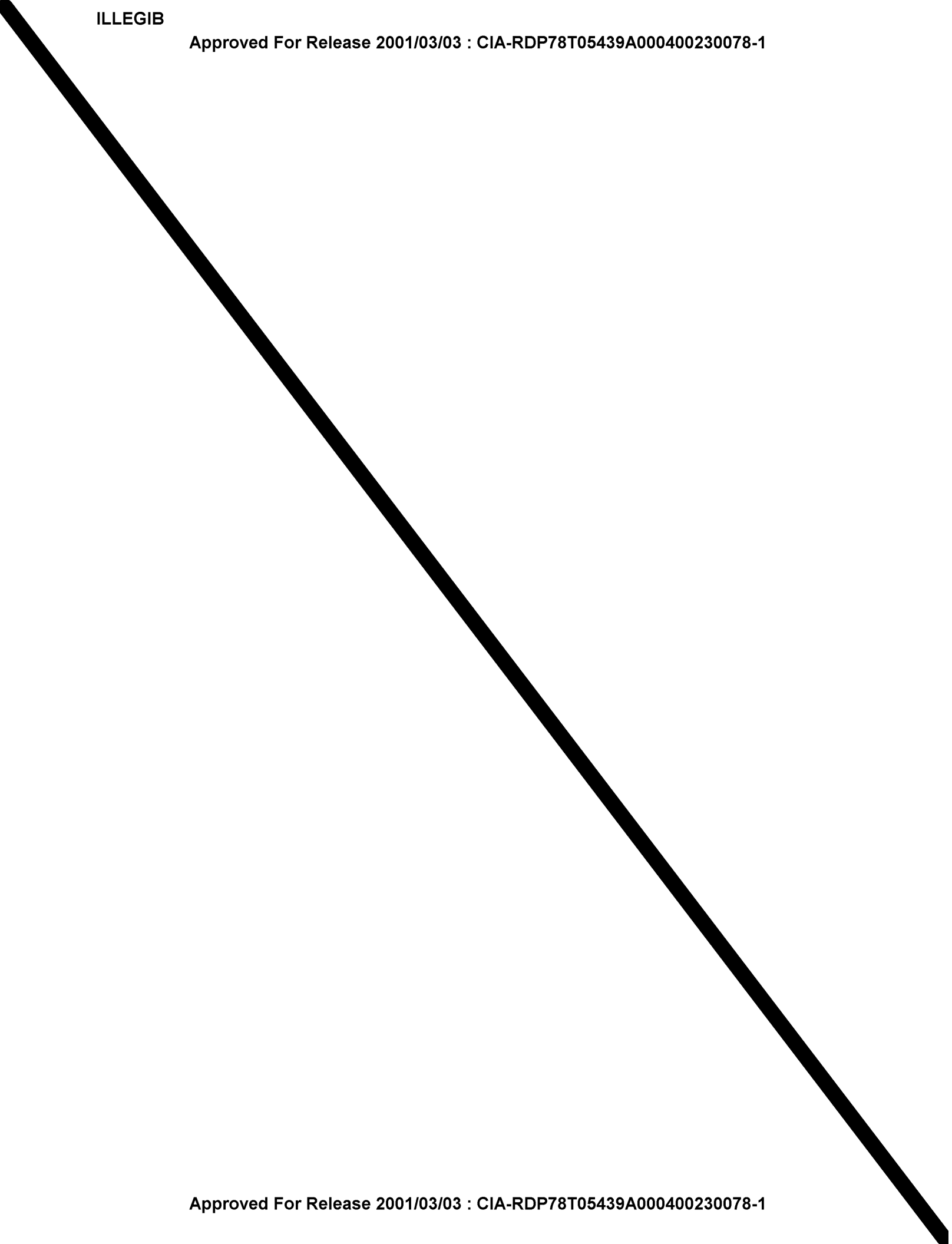

TCS 10897-64
G-MB - 931/64
10 December 1964
Copy 7

MEMORANDUM FOR: Chief, Current Support Staff, ORR

ATTENTION : [redacted] 25X1A

THRU : Chief, RG/RB/CGS

FROM : Chief, Photographic Intelligence Division, CIA

SUBJECT : Landslide on the Zeravshan River, USSR

REFERENCE : Requirement No. C-RR4-81,597 (Project No. C 1193-64)

1. In response to Requirement No. C-RR4-81,597 (C 1193-64), a search has been made for the landslide in the Zeravshan river valley which reportedly dammed the river and thus threatened Samarkand. Insofar as it can be determined, between the dates of late [redacted] when the landslide occurred, and [redacted] when photographic coverage first became available, the military involvement has been assessed. Only positive aspects of this involvement are noted in the following report. 25X1D 25X1D

2. The site of the landslide, immediately upstream from a small village a few miles west of Ayni (39 23N-68 32E), has been identified by comparing the only available earlier and later photographic coverage (Missions [redacted] 25X1D 25X1D

3. Identification of the site was based mainly on differences in location of the stream channel, as indicated on the accompanying photographs. In comparison with its earlier location, the junction of the main stream and a large tributary from the south in the more recent photography has been shifted upstream on the main channel. It is apparent that the north bank of the main stream gave way below the present junction, blocking the former stream course, which followed close to the bedrock bluff on the south. A portion of the north terrace, about a mile long, appears to have moved almost en masse into the gorge cut by the stream. Additional evidence of this removal from the north bank is found in the disappearance of the site of several clumps of trees seen on the north terrace east of the village in the earlier photography. Apparently, also, in order to prevent damming of the stream, Soviet engineers cut a trench between the collapsed block and the terrace from which it was displaced. Sharpness of the channel sides is noticeable. No evidence of high water levels can be distinguished. On the later coverage the water upstream from the new junction is higher than on the earlier photography. From this it is deduced that the engineered 25X1D

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channel was dug deep enough to go beyond the unconsolidated materials of the terrace and to be acceptable to the flow of water, leaving the deeper bedrock portion of the channel to be cut by the flowing stream. No volume estimate of the landslide block is being made. Quality of the early photography precludes a reliable estimate. Depth of the gorge would also be difficult to fix. While engaged in this study, the analyst, by mere chance, came upon a low oblique photograph reportedly taken less than 20 miles upstream from this landslide and in the same river system, the Darkh being apparently a tributary to the Zeravshan. The photograph can be seen in the following reference book, and with the following caption:

> vonEngeln, O.D.: Geomorphology. New York, 1942. 655 pages, Figure 114, facing page 225. "Superimposition of stream from Pleistocene glacial gravels on a spur of slate rock at left side of lower end of gorge. The Darkh gorge, near Samarkand."

25X1D

4. Other changes [redacted] include the disappearance of the former bridge over the Zeravshan immediately below the terrace on which the village is located. The bridge may have been destroyed at the time of the landslide upstream, either in the collapse of a portion of the village terrace facing the stream at this location, or by flood waters at some other time. Roads on both sides of the stream immediately below the village terrace have no transstream continuation. The earlier road along the plain west of the village appears abandoned. Additional activity in the vicinity between the dates of photography includes the building of two bridges upstream from the junction and the landslide, one over the main stream and the other over the south tributary, thus enabling passage from one side of the river to the other upstream from the village, as well as access up and down the main valley. It is expected that the building of these two bridges is closely related to the disappearance of the bridge near the village. Like the old bridge, these two have been built at the lowest level in the gorge rather than with the greater length and less dependable support that would characterize a bridge built at or slightly below the main terrace level. It is not possible to determine from photography that these new bridges may not have been there before the terrace collapse, nor that that collapse may not have been anticipated. Downstream from the scene of disaster, on the plain south of the stream, a new straight road is visible. The road may be only a natural surface, straight because it was first traversed over level terrain by mechanized vehicles headed for the site of the landslide, or bridge building, whichever was earlier.

5. Forwarded for your retention are six annotated photo enlargements (CIA/PID/GMB/P-2963/64, copies 1 thru 3 and P-2964/64, copies 1 thru 3).

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25X1A 6. The photo analysis on this project was performed by [redacted], CIA/PID/GMB, who may be contacted on ext. 2548 for any additional information.

7. This memo completes the referenced requirement.

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[redacted]

ENCLOSURES:
6 - annotated photo enlargements

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CLUMPS OF TREES
FORMER BRIDGE
ABANDONED STREAM COURSE